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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/582,910	09/06/2006	Alexander Antonius Stroeks	4662-200	8737

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EXAMINER	
GRESO, AARON J	

ART UNIT	PAPER NUMBER
1796	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/582,910	STROEKS ET AL.	
	Examiner	Art Unit	
	AARON GRESO	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) *9-15* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Any rejections and/or objections made in the previous Office Action and not repeated below, are hereby withdrawn. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

References previously cited are provided in a previous Office Action. References not previously cited are found per the attached PTO-892 for this Office Action.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6, 8 are rejected under 35 U.S.C. 102(b) as being anticipated by *Cyr et al. (US 6455620)*.

Cyr et al. (Abstract) disclose compositions comprising an oxidation catalyst and polyethers that include substituted or unsubstituted, polyalkylene glycol copolymers and blends with other polymers *(col 2 lines 55-56)* including polycondensation polymers *(col 5 lines 10-13)*.

As to Claims 1-4:

The polyalkylene glycols disclosed *(col 3 lines 16-55)* comprise polypropylene glyclol {also known as polyoxy-1,2-propanediyl, see informational reference:

EP1878780, page 4 lines 13-14} polymer segments *(col 3 lines 49-55)*. The polyalkylene oxide material is indicated to comprise molecular weights from 500-5000; for a polypropylene unit of 60 g/mol {-H_6C_3O-), this molecular weight corresponds to a unit number of about 9 to 90 units. The segments prior to reacting are expected comprise functional groups to enable co-polymerization *(col 8 lines 3-6 and col 3 lines 35-37).*

The polyalkalene glycol materials of C1-C3, which polypropylene glycol is included and is used for example *(Example 36 col 19),* are indicated to be present in the amount of at least 1% {taken as meaning from 1% to 100% *(col 3 lines 41-45)*; the polymer comprising 99.99 weight percent of the total composition (col 4 lines 66-67)}; the polyalkylene component of a polycondensate copolymer may be up to 99 weight percent of a polyester/polyalkylene glycol polymer *(col 8 lines 6-8);* and is preferably present in the amount of 10-15% *(col 3 lines 44-45).*

When the above is taken with the reference's claim 28 *(col 22 lines 14-16)* and claim 1 *(col 19 lines 62-67 and col 20 lines 1-12)*, indicating that the poly alkylene glycol comprises 10-15% of an oxygen scavenging composition comprising polycondensate polymers with copolymers of polyalkylene glycols and an oxidation catalyst, instant Claim 1 is further addressed.

Further as to Claims 1, 3-4:

In Example 36 *(col 19)*, polypropylene oxide, or the polyoxy-1,2-propanediyl is reacted into a polyester chain and indicated to be present in the copolymer chain in an amount of about 100x(1.5/101.5) or 1.48%.

Further as to Claim 2:

Polyalkylene glycols, including polypolypylene glyclol or polyoxy-1,2-propanediyl *(col 3 lines 16-55),* can be covalently bound to polyamides in the form of a co-polymer *(col 7 lines 20-22 and lines 31-34 and lines 55-56)*; thermoplastic polymers for co-polymerization also comprise polyesters *(col 5 lines 10-13 and col 7 lines 49-50);* blends of polymers are indicated to comprise polyethylene terephthalate {PET}.

Further as to Claim 1-4:

In order to be bound to amides or polyesters, to form co-polymers, it would be expected, by those of ordinary skill in the art, that the polypropylene glycol material, would require end-group functionalization {e.g., would comprise OH groups to react with carboxylic acid groups of pre-polymerized polyesters or amines of prepolymerized amides} as the reference does not further indicate requiring cross-linking is required to form polyester or polyamine copolymers with polypropylene glycol material. Replacing polypropylene end groups with different polymeric segments due to reaction requires a substitution of the polypropylene end group with the other polymeric segment.

As to Claim 6:

Oxidation catalysts comprise transition metal salts *(col 4 lines 52-53)*. Compositions *(col 14 lines 27-28)* are indicated to also comprise cobalt TEM-CEM {also known as cobalt neodecanoate, see informational reference *US 5811027 col 12 Formulas I, II, and III, lines 22-42)*}; TEN-CEM is taken to represent a transition metal salt.

The reference discloses or inherently discloses the limitations for the applicable Claims above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Cyr et al. (US 6455620)* as applied to Claims 1-4, 6 above.

Over a 25 day test, the reference discloses the result for one formulation was zero oxygen permeability *(Table 9 col 16)*, when compared with the same samples comprising less polyalkylene glycol and less cobalt catalyst.

Although the reference indicates testing of films for oxygen permeability using ASTM D3985-81/1988 *(col 16 lines 19-42)*, the reference does not indicate use of films having a thickness of 60 um or 0.060 mm; films of 125 um or 125 microns *(Example 37 col 19 lines 34-35 and col 16 line 50)* are employed; this is done by simply pressing the material within a 5 mill (0.005 in) thick frame or shim.

On the other hand, films can be pressed to thinner thicknesses by substitution of thinner shims, or press frames {Examiner's personal experience, University of Tennessee c. 1992} and this would be expected to be considered obvious by one of ordinary skill in the art at the time of the invention.

It is the Examiners position that the detected amount of oxygen permeability would be expected to be obviously influenced by the film thickness {see informational reference: *McCaig et al. Polymer vol 41 (2000) pp 629-637, page 636, last paragraph*}.

It is also the Examiners position that thickness and composition are result effective variables because changing them will clearly affect the type of product obtained. See MPEP § 2144.05 (B). Case law holds that "discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art." See In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

In view of this, it would have been obvious to one of ordinary skill in the art to utilize appropriate composition formulating and processing thickness, taught by the reference, including those within the scope of the present claims, so as to produce desired end results.

Further, it would be expected that oxygen permeability into the polymer would facilitate the contact of the catalyst, embedded within the polymer and not specifically restricted to the wall of the polymeric material, with oxygen, to enable oxygen scavenging.

In accord with the case law above, it would have been obvious at the time of the invention, to one of ordinary skill in the art, to have used results effective variables, by employing common skill in the art for making thinner films and modifying as compositions with desired thickness, to achieve a product that would provide an acceptable oxygen permeation value in the proximity of zero, as taught by the value of reached by *Cyr et al.*

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Cyr et al. (US 6455620)* as applied to Claims 1-6, 7-8 above, and further in view of *Raff et al. (Northwest Science Vol 44 no 3 pp 184-205 1970)*. [The analogous association of Cyr et al. and Raff et al. is based upon crystallinity and processing; *Raff et al.* teaching fundamentals directly related to crystalline polymer processing of *Cyr et al.*]

Although the reference indicates that the polymers are *crystalline (Examples 18-19 col 15 lines 1-2, col 16 lines 15-16)*, and the reference indicates methods upon which to crystallize the polymers, the reference does not further disclose the size of the compositions' agglomerates {understood by the Examiner, from the instant Specification (page 6 lines 1-30), to be the same as polymeric "spherulites"}.

On the other hand, *Raff et al.* teaches that spherulite sizes affect gas permeability *(page 191 penultimate paragraph)* and polymers with spherulites have been structurally manipulated by using varying the temperature in preparation techniques {*(page 189, penultimate full paragraph, and last full paragraph)* and Examiner's personal experience, University of Tennessee c. 1992} as well as orientation preparation methods *(page 189 last paragraph to page 190 second full paragraph)*. Such structures can be of pancake like shapes {see informational reference: *Franco et al. J. Polymer Science Part B Polymer Physics pp 1719-1726; p. 1725, Figure 6*}.

It is the Examiners position that polymer processing conditions and spherulite or conglomerate sizes are result effective variables because changing them will clearly affect the type of product obtained. See MPEP § 2144.05 (B). Case law holds that

"discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art." See In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

In view of this, it would have been obvious to one of ordinary skill in the art to utilize appropriate polymer test structure orientation and processing temperatures, taught by the above references, including those within the scope of the present claims, so as to produce desired end results.

In accord with the case law above, it would have been obvious to one of ordinary skill in the art at the time of the invention to have used results effective variables, such as processing temperature schedules and orientation methods, as taught by *Cyr et al.* and *Raff et al.* to achieve a product that would provide an acceptable and spherulite size as taught by and *Raff et al.*

Response to Arguments

Applicant's arguments filed 01/08/2010 have been fully considered but they are not persuasive. Applicant argues:

A. {pages 6-7 of 10 102(b) rejections}: that the reference of *Cyr et al.* only discloses polypropylene oxides that are non-substituted.

In response, it is the Examiner's position that the reference does not indicate that the propylene segments are linear. A linear propylene oxide is referred to in the art as polyoxetane {see informational reference: *Perez et al., Colloid and Polymer Science Vol 261 pp 571-576, 1983; 1st paragraph*}. The reference does not disclose polyoxetane.

As a comprehensive aid, the following references are also suggested.

Polypropylene glycol

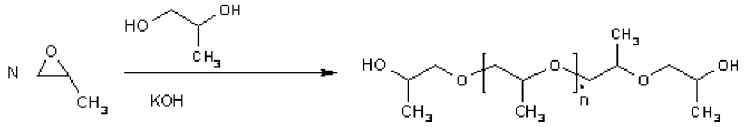
From Wikipedia, the free encyclopedia

Polypropylene glycol or **polypropylene oxide** is the polymer of propylene glycol. Chemically it is a polyether. The term polypropylene glycol or **PPG** is reserved for low to medium range molar mass polymer when the nature of the end-group, which is usually a hydroxyl group, still matters. The term "oxide" is used for high molar mass polymer when end-groups no longer affect polymer properties. In 2003, 60% of the annual production of propylene oxide of 6.6×10^6 tonnes was converted into the polymer.[1]

Contents [hide]
1 Polymerization
2 Properties
3 Uses
4 References

Polymerization [edit]

Polypropylene glycol is produced by anionic ring-opening polymerization of propylene oxide. The initiator is an alcohol and the catalyst a base, usually potassium hydroxide. When the initiator is ethylene glycol or water the polymer is linear. With a multifunctional initiator like glycerine, pentaerythritol or sorbitol the polymer branches out.



Conventional polymerization of propylene oxide results in an atactic polymer. The isotactic polymer can be produced from optically active propylene oxide, but at a high cost. A salen cobalt catalyst has recently been reported to provide isotactic polymerization of the racemic propylene oxide [1].

Polypropylene oxide per Wikipedia http://en.wikipedia.org/wiki/Polypropylene_glycol

See also page 7 of 8, INCI Nomenclature Conventions 24/02/2006 item 36, shown below:

> 36. Polypropylene glycol (polyoxy-1, 2-propanediyl) is abbreviated to the acronym "PPG".
> Polypropylene glycol homopolymers are named as PPG-X, where X is the average number of propylene oxide monomer units, e.g. PPG-10.
> Esters and ethers of polypropylene glycol homopolymers are named as PPG derivatives, e.g. PPG-10 stearate, PPG-10 lauryl ether.
> Other propoxylated substances are named accordingly.

{See above from: page 7 of 8, INCI Nomenclature Conventions 24/02/2006 item 36, this reference has been previously provided}.

Further as to page 10: As the reference discloses that the oxygen scavenging compositions comprise co-polymers of alkylene glycols, the reference is taken to inherently disclose that the polymeric compositions comprise polypropylene glycol (col 2 lines 50-56) and that disclosure includes these materials. When in co-polymeric form, with another polyalkylene glycol, (ibid.), the polypropylene oxide, or polypropylene glycol, would be expected to be in combination with another polycondensate.

B. {pages 8-10 103(a) rejections}:

1) Cyr et al. teaches away from polypropylene oxide material.

In response, Cyr et al. does not specifically indicate that polypropylene oxide material is not to be used. While Cyr et al. does not exemplify polypropylene oxide, this does not negate a finding of obviousness under 35 USC 103 since a preferred embodiment such as an example is not controlling. Rather, all disclosures "including unpreferred embodiments" must be considered. In re Lamberti 192 USPQ 278, 280 (CCPA 1976) citing In re Mills 176 USPQ 196 (CCPA 1972). Therefore, it would have been obvious to one of ordinary skill in the art to utilize a polypropylene oxide material given that Cyr et al. teaches its employment in compositions.

2) Applicant further argues {pages 9-10} that the oxygen barrier properties are not associated with spherulites and that oxygen scavenging in polymer films is questionably related to gas diffusion in polymer films.

In response, the 103(a) rejection made in regard to film barrier properties {page 6, paragraph 20 prior Office action}: the rejection is based upon the optimization of both

composition and film thickness properties. When deciding upon an appropriate or optimum film thickness for comparisons involving the varying processing conditions taught by the references, and the variation of compositions suggested by the ranges of the materials employed, one of ordinary skill in the art would be expected that this would include investigations involving composition variations and processing variations.

Further, as the products have identical composition, comprising spherulitic structure, it is held that "Products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, in this case the crystallinity associated with spherulites, that form materials having oxygen scavenging properties, the properties applicant discloses and/or claims are necessarily present. *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Further, in response to applicant's argument that gas permeation and oxygen scavenging are different, the fact that Applicant has recognized another advantage which would flow naturally from following the suggestions of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Further, it would be expected that oxygen permeability into the polymer would facilitate the contact of the catalyst, embedded within the polymer and not specifically restricted to the wall of the polymeric material, with oxygen, to enable oxygen scavenging.

As the Applicants' arguments are not supported by supportive and conclusive evidence, the rejections stand.

Conclusion

This action is properly final because the claims are rejected on the same grounds as set forth in the previous Office Action mailed on 27 November 2009.

Accordingly, THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). See MPEP § 706.07(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

This action is a final rejection and is intended to close the prosecution of this application. Applicant's reply under 37 CFR 1.113 to this action is limited either to an appeal to the Board of Patent Appeals and Interferences or to an amendment complying with the requirements set forth below.

If applicant should desire to appeal any rejection made by the examiner, a Notice of Appeal must be filed within the period for reply identifying the rejected claim or claims appealed. The Notice of Appeal must be accompanied by the required appeal fee.

If applicant should desire to file an amendment, entry of a proposed amendment after final rejection cannot be made as a matter of right unless it merely cancels claims or complies with a formal requirement made earlier. Amendments touching the merits of the application which otherwise might not be proper may be admitted upon a showing a good and sufficient reasons why they are necessary and why they were not presented earlier.

A reply under 37 CFR 1.113 to a final rejection must include the appeal from, or cancellation of, each rejected claim. The filing of an amendment after final rejection, whether or not it is entered, does not stop the running of the statutory period for reply to the final rejection unless the examiner holds the claims to be in condition for allowance. Accordingly, if a Notice of Appeal has not been filed properly within the period for reply, or any extension of this period obtained under either 37 CFR 1.136(a) or (b), the application will become abandoned.

Examiner Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AARON GRESO whose telephone number is (571)270-7337. The examiner can normally be reached on M-F 0730-1700.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on 571 272 1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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